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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,982	11/12/2003	Kai D. Feng	BUR920030142US1	2981
30449	7590	06/07/2004	EXAMINER	
SCHMEISER, OLSEN + WATTS SUITE 201 3 LEAR JET LATHAM, NY 12033			NGUYEN, MINH T	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/605,982	FENG, KAI D.	
	Examiner	Art Unit	
	Minh Nguyen	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because :

- (i) it uses words which can be implied, i.e., "comprises",
 - (ii) the first and second sentences are merely a repeated information given in the title,
- i.e., should be deleted.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 1, the claim is indefinite because it fails to particularly point out and claim the structure of the charge pump circuit for compensating spark current resulting from a switching mode of the control signal which the applicant regards as the invention. Specifically, the invention is about a structure of a charge pump circuit that is able to compensate for a spark current resulting from a switching mode of the control signal, however, the claim fails to claim such a structure. The evidence is that none of the element recited in the charge pump circuit able to yield to recited result which is to compensate for the spark current as required.

As per claim 2, the claim is indefinite because it fails to particularly point out the structural relationship between the first FET, the current source, the second FET, the capacitors which applicant regards as the invention. Without a clear structural relationship between these elements, the claim merely a list of “catalogue of elements”, and therefore, fails to meet the 112, second paragraph requirements.

As per claim 10, the dependency of the claim appears incorrect, i.e., -- 9 -- instead of “6” or the terms “first impedance value” and “second impedance value” lack antecedent basis.

As per claims 2-10, these claims are further rejected because of the indefiniteness of claim 1.

As per claim 20, the same problem exists as discussed in claim 10.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,646,563, issued to Kuo.

As per claim 1, Kuo discloses a PLL (Fig. 4), comprising:

a voltage controlled oscillator (VCO 440) for providing a first signal (VCO_IN);

a phase comparator (310) for comparing the first signal (VCO_IN) to a reference signal (REF_IN) and providing a control signal (CNTRL_N and CNTRL_P); and

a charge pump circuit (320) for receiving the control signal and performing the recited function (note that these elements discussed so far are merely elements in any prior art PLL), the charge pump circuit compensates for a spark current resulting from a switching mode of the control signal (column 4, lines 1-14, i.e., the structure of the charge pump 320 is for reducing the jitters (spark current) caused by the switching of the control signal).

As per claim 2, Kuo further discloses a list of elements comprises a current source (340), a first FET (328), a second FET (326), a first capacitor (C1), and a parasitic capacitor (every FET has this element when the FET is operated in a switching environment) wherein the current source is for discharging the first capacitor (it is clear that there is a path from the capacitor C1 through the FETs 326 and 328 to ground) wherein the second FET comprises parasitic capacitance that is to direct the spark current to ground (it is clear that the frequency of noise (jitters or spark current) caused by the switching is much higher than the switching frequency and parasitic capacitance exists between terminals of the second FET to ground, this parasitic capacitance acts as a filter to direct the jitters to ground).

As per claim 3, the first FET (328) clearly receives the control signal (CNTRL_N) at the gate, and since the first FET is an NFET, the functional recitation is met, i.e., ON at logic high and OFF at logic low.

As per claim 4, met since the recitation is merely the result of the operation.

As per claim 5, the first (328) and second (326) FETs are clearly NFETs.

As per claim 11, the claim is merely a method to operate a PLL having the structure noted in claim 1, since Kuo teaches the circuit, he inherently teaches the recited method.

As per claims 12-15, these claims are rejected for the same reasons noted in claims 2-5, respectively.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-10 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,646,563, issued to Kuo.

As per claim 6, Kuo discloses a PLL as discussed in claim 2 but he does not explicitly disclose the second FET is adjusted to operate in saturation mode as called for in the claim (actually, Kuo does not mention whether the first FET (326) is operated in saturation mode).

However, as ruled by the court, when a general condition is met, it is not inventive to modify the parameter to obtain the optimum result. In this instant case, Kuo teaches a PLL

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having the structure recited in claim 2 (general condition), the act of increasing and/or decreasing the current value of the current source (340) which resulting in driving the second FET (326) to saturation mode to obtain the optimum result is well within the level of one skilled in the art.

It would have been obvious to one skilled in the art at the time of the invention was made to adjust the current source (340) in the Kuo's PLL so that the second FET is operated in saturation mode for the motivation to obtain the optimum result is well within the level of one skilled in the art, i.e., by experiment, one skilled in the art can easily vary the value of the current source to find a value which will minimize the spark current using the structure taught by Kuo.

As per claim 7, the recited direct current voltage is the voltage at the gate of the second FET (326), and since the second FET is in saturation mode, the recited condition on the last three lines must be met.

As per claims 8-10, these claims are rejected for the same reasons and motivations as discussed in claim 6 herein above, i.e., Kuo explicitly discloses the structure as discussed in claim 2, it is not inventive to modify the parameters as recited in these claims to obtain the optimum conditions.


As per claims 16-20, these claims are rejected for the same reasons and motivation noted in claims 6-10, respectively.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Nguyen whose telephone number is 571-272-1748. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:00-5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



5/27/07

Minh Nguyen
Primary Examiner
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